

has adopted this generic term for a series of "Rails of the East Indies and Australia, with rather robust beak, more or less straight, and of the length of the head: below, either entirely or in part, including the remiges and wing-coverts, black, with white cross bands: size equalling or exceeding a little that of *R. aquaticus*." I am disposed to believe that this group is a natural one, although there are but slight structural characters to distinguish it from true *Rallus*.

Schlegel assigns four species to *Hypotaenidia*, arranged in two sections, as follows:—

A. Whole body below with white cross bands; upper surface and wings dark olive-brown; sides of head black, with a white line from the angle of the mouth to the neck.

1. *H. torquata* (Linn.), of the Philippines.

2. *H. celebensis* (Q. et G.), of Celebes.

B. Lower surface below the neck with white cross bands; upper surface, starting from the neck, with white spots or bands.

3. *H. philippensis* (Linn.), of the Philippines, Celebes, Australia, New Caledonia, and the Pacific Islands.

4. *H. striata* (Linn.), of India, China, Philippines, Java, &c.

To these species we must now add *H. sulcirostris* and *H. saturata*, as above mentioned, and the fine new *Hypotaenidia insignis*, which I have lately described from New Britain. *H. sulcirostris* and *H. saturata* should succeed *H. celebensis* in Section A, while *H. insignis* will form a section *per se* next to section A, but differing in the absence of the white stripes on each side of the head.

XXX.—*Notes on a 'Catalogue of the Accipitres in the British Museum' by R. Bowdler Sharpe (1874).* By J. H. GURNEY.

[Continued from p. 217.]

MR. SHARPE unites the genera *Leptodon* and *Regerhinus*, dropping, as regards the former, Cuvier's earlier synonym of

Cymindis, on account of its having been otherwise appropriated some years previously to Cuvier having so used it. It seems to me, however, that *Leptodon* and *Regerhinus* ought to be regarded as distinct genera, for the reasons which have been well set out by Mr. Ridgway in the remarks on this subject contained in his 'Studies of the American Falconidæ,' pp. 152, 156, and especially on account of the tooth in the tomia of the upper mandible, by which *Leptodon cayennensis*, the only species of the genus *Leptodon*, is distinguished. The genus *Regerhinus* has (to use Mr. Ridgway's words) "tomia without indentations or perceptible sinuations," though it is right to mention that Léotaud, in his 'Oiseaux de l'île de la Trinidad,' describes, at p. 40, the type specimen of his "*Cymindis pucherani*," which in other respects seems to have agreed with the not very uncommon melanistic phase of *Regerhinus uncinatus*, as having an upper mandible, of which he says, "son bord sans être tout-à-fait droit . . . n'est cependant qu'à peine festonné; à sa naissance on pourroit croire qu'il existe une petite dent; sa pointe très-effilée représente absolument celle du bec du *Cymindis uncinatus*."

The toothless upper mandible of *Regerhinus* is, I think, an indication that it approximates more nearly than *Leptodon* to the genus *Pernis*, which I last considered, and I therefore propose to refer to it next.

The most widely spread and best-known species of the genus *Regerhinus* is *R. uncinatus*. Mr. Sharpe does not mention the colour of the iris and the non-feathered parts in this species; and as it is a bird varying greatly in the coloration of the plumage in its immature stages, it is desirable to ascertain how far it is also subject to variation in the colour of these parts. As bearing on this subject I may quote the following information given by Professor Schlegel in the article on this species in his work on the Muséum des Pays-Bas, Pernes, p. 8:—"Iris couleur de perle, serres jaune d'orange, cire en dessus d'un vert foncé sale, vers le bas jaune d'orange, une raie verte depuis les narines jusqu'aux freins qui sont d'un vert bleuâtre, une tache jaune d'orange der-

rière les narines, paupières d'un beau vert clair." A very similar account is given by Léotaud at p. 38 of his work, to which I have already referred; he says, "Bec noir, blanchâtre à la base de la mandibule inférieure, cire, lorum et paupières d'un jaune légèrement teint de vert, pattes d'un joli jaune orangé, iris blanc avec une légère teint jaune."

The same author speaks thus of the type specimen, which I have already mentioned, of his "*Cymindis pucherani*":—"Bec noir, blanchâtre à la base de la mandibule inférieure, cire, iris et pattes jaunes."

"*Cymindis boliviensis*" of Burmeister, which, like "*C. pucherani*," is probably founded on a melanistic specimen of *Regerhinus uncinatus*, is described in the P. Z. S. for 1868, p. 633, as having "the upper mandible black, the under mandible whitish Iris dark brown Legs yellow."

It seems that in melanistic specimens, and also in some ordinary immature examples, the colour of the iris varies from the pearly-grey adult type. Thus a young melanistic specimen from Medellín, in the collection of Messrs. Salvin and Godman, is ticketed by the collector as having had yellow irides; and an ordinary immature example from Venezuela, in the same collection, in the second or rufous stage of plumage, had the irides light brown.

The changes of plumage incident to *R. uncinatus* before it attains its fully adult dress are very curious, and for the most part are sufficiently described in Mr. Sharpe's volume; there are, however, a few points on which I may endeavour to supplement his description by such additional information as I have been able to collect on comparing numerous examples, most of which are preserved in the British and Norwich Museums and in the collection of Messrs. Salvin and Godman, who have very kindly allowed me the use of their specimens.

In Léotaud's 'Birds of Trinidad,' p. 39, the description is given by that author of a young bird of this species, of which he says, "parties inférieures d'un blanc tout-à-fait pur;" and, although I have never seen a specimen precisely answering to this description, I think it most probable that this pure

white under surface is a normal phase of the nestling plumage, appertaining to an earlier age than that of either of the two specimens described under the head of "young" by Mr. Sharpe.

The second complete stage of dress is that which Mr. Sharpe terms "mature," but which, as it seems to me, by no means merits that title. This phase of plumage is figured by Temminck in the *Planches Coloriées*, t. 115*; the third stage of plumage is figured in the same work on t. 104, and the fourth on t. 103. The oldest specimen described in Mr. Sharpe's volume has not yet fully acquired this fourth and final costume, of which the examples preserved in the museums in this country are by no means numerous. I only recollect two such, viz. one in the British Museum from Panama, which I believe has been acquired since the publication of Mr. Sharpe's volume, and one in the Norwich Museum from Brazil.

The passage from one stage of plumage to another is attained, as Mr. Sharpe has well pointed out, by approaches which are often irregular in their progress, and which vary much in different individuals.

Taking the second description of the young plumage given by Mr. Sharpe at p. 331 of his volume, paragraph 2 (but with the under surface entirely white, as indicated by Léotaud), as the first or nestling stage of plumage, I may mention that the passage from this to the second stage appears to commence with the following changes, viz.:—All the dark parts of the upper surface become of a blacker brown, and the rufous edgings to the feathers of the mantle gradually disappear; the dark transverse bands on the tail, which are four in number in the majority of very young birds, but occasionally five, are reduced to three, and become broader and blacker, whilst the interspaces between them change from light brown to slaty grey, which is frequently mingled with white on the upper edge of the middle interspace, and more largely so in the upper one; the base of the rectrices also becomes white

* This plate is accidentally referred to erroneously in Mr. Sharpe's volume as pl. 105.

in some individuals, and at the spot where each of the pale interspaces crosses the inner webs of the rectrices the colour changes from fulvous brown to white, although these changes in the tail are sometimes postponed till the assumption of the third stage of plumage has commenced; on the under wing-coverts the transverse barring begins on the lowest row of feathers, and before it spreads further, and sometimes before it even begins at all, the axillaries and tibiae become regularly cross-barred, whilst the flanks, breast, and abdomen still show but scanty indications of the transverse bands, which are gradually developed on those parts also, and which, it may be observed, are, at their earliest appearance, much broader and more rufous in some individuals than in others, but usually appear most broadly and conspicuously on the sides of the upper breast, whence they sometimes extend on to the sides of the nuchal collar. This collar would seem to be always white in the first instance, occasionally becoming tinged with fulvous as its change to the rufous colouring of the second stage approaches, though in other cases the commencement of this change is indicated by some of the white feathers of the collar acquiring a brown spot or a brown tip of variable depth, whilst in yet other cases the change begins by the lowest row of feathers in the collar first assuming the rufous hue which subsequently pervades the whole.

Some individuals begin to assume the grey head and face of the third stage before they have passed into the second stage, which they thus partially overleap, and probably, in some cases, never undergo at all.

When the change takes place from the second or rufous stage to the third or earlier grey dress, the head usually becomes grey first, feathers either wholly grey or tipped with grey appear in the mantle, the nuchal collar disappears, and the rufous transverse bars, which alternate with the white ones on the under surface, assume a tinge of slaty grey, with which the rufous tints remain mingled for a while and then gradually disappear.

As the fourth stage is approached, the white transverse bars on the under surface become gradually fewer and nar-

rower, until, by the time the final plumage has been fully attained, they have all vanished, the upper white or whitish interspace on the tail simultaneously disappearing, and the remaining one at the same time becoming considerably enlarged, so that it forms a broad white band on the centre of the tail, the rectrices then exhibiting no other pale marks, except a narrow greyish-white tip; there is also some white on the bases and tips of the upper tail-coverts, and a slight whitish marbling on the inner webs of the primaries; but, with these exceptions, the entire plumage is an unbroken slaty grey, of a darker tint, both above and below, but especially on the underparts, than the earlier grey garb which is first assumed when the bird passes into its third stage of plumage.

Professor Schlegel, in his work on the *Muséum des Pays-Bas* (Pernes, p. 8), referring to the specimen in the fourth stage of plumage figured in the 'Planches Col.' t. 103, speaks of this dark slaty hue ("schiste noirâtre") as a melanistic phase; but it seems to me to be more probably the normal colour of the bird in its most adult stage of plumage.

The true melanistic phase of this species appears to me to be that in which the prevailing colour is not schistaceous, but a blackish chocolate-brown; such a melanistic specimen, from Medellin, in Antioquia, is in the collection of Messrs. Salvin and Godman, and is everywhere of this dark chocolate-brown hue, with the following exceptions, viz.:—The feathers of the hinder head, nape, and breast have concealed white bases; those of the abdomen and lower flanks are narrowly tipped with rufous; on the inner webs of the quill-feathers of the wing four white bars are apparent on the under, and partially so on the upper, surface; two pairs of white spots are on the lowest row of the under wing-coverts, the upper pair forming a transverse bar; the upper tail-coverts are crossed by one white bar and the under coverts by two, the former being tipped with white, and the latter with rufous; the tail shows three pale interspaces, of which the uppermost is entirely white, and the others white on the inner webs, it also has a pale tip. An almost precisely similar

South-American specimen is preserved in the British Museum : both these birds are, from the character of the barring on the tail, evidently immature ; but I saw, some years ago, in the museum attached to the Zoological Gardens at Antwerp, a specimen said to be from " La Plata or Paraguay," which, though similar in its general coloration to those just mentioned, had but one white transverse bar apparent on the tail, and was therefore an older bird, and probably adult. It is, however, possible that, at a still greater age, these chocolate-coloured melanistic specimens may assume a blackish slate-coloured hue, as has been suggested by Professor Schlegel, and as habitually happens in the melanistic males of Montagu's Harrier (*Circus cineraceus*).

A less abundant and even more remarkable species than *Regerhinus uncinatus* is its nearly allied congener, *R. megarhynchus*. Mr. Sharpe gives as the habitat of this species Peru and Bolivia ; and in Peru it appears to be found to the exclusion of *R. uncinatus*, but it also occurs in other countries where *R. uncinatus* is likewise found. Thus Messrs. Salvin and Godman possess a specimen from the upper Amazons and another from Bahia, and in the Norwich Museum two examples are preserved from the Isthmus of Tehuantepec in South-Western Mexico*.

R. megarhynchus seems to differ from *R. uncinatus* only in being, on the average of specimens, a slightly larger bird, and in being constantly furnished with a conspicuously larger bill.

In illustration of the proportionate dimensions of the two species, I may mention that I have taken measurements from twenty-one examples of *R. uncinatus*, with the following results, viz. :—The wing-measurement I found to be 10·8

* One of these Tehuantepec specimens was collected at Santa Efigenia by Professor Sumichrast, who does not appear to have recognized the distinctness of this species from *R. uncinatus*, of which I have also seen a specimen from Tehuantepec ; it is therefore probable that the Professor's note on *R. uncinatus*, as observed in that locality, which was published by Mr. Lawrence in the ' Bulletin of the U.S. National Museum,' No. 4, p. 43, may partly apply to *R. megarhynchus*.

inches in one specimen, 10·9 in three, 11·2 in five, 11·3 in two, 11·4 in three, 11·5 in two, 11·6 in one, 11·7 in two, 10·8 in one, and 12 in one ; and the culmen, without the cere, measured along the curve of the bill, showed the following dimensions, viz., 1·3 inch in three specimens, 1·35 in five, 1·4 in six, 1·45 in four, and 1·5 in three. I have also taken the following measurements from six specimens of *R. megarhynchus*, viz. :—

	Wing- measurement. in.	Culmen, without cere. in.
From Peru, in the British Museum. .	12·4	1·95*
From Peru, in the Norwich Museum	imperfect.	1·7
From the Upper Amazons, in the collection of Messrs. Salvin & Godman	11·75	2·1
From Bahia, in the same collection. .	11·5	2·1
Male, from Tehuantepec, in the Norwich Museum	12·4	1·95
Female, from Tehuantepec, in the Norwich Museum	12·6	2·0

The colour of the non-feathered parts in *R. megarhynchus* (allowing for individual variations) appears to resemble those of *R. uncinatus*, and the changes of plumage in the two species seem, so far as they are known, to be identical. The nestling plumage of *R. megarhynchus* is, I believe, the only one with which we are, as yet, unacquainted ; but three young birds from Peru have been described by M. Taczanowski in the P. Z. S. for 1874, p. 551 (last paragraph), and in the P. Z. S. for 1879, p. 242 (last paragraph relating to this species), which appear to be in course of change from the nestling to the second stage of plumage, an intermediate phase of dress which occurs very frequently in *R. uncinatus*. Of the first of these specimens M. Taczanowski remarks, “ le bec est noir, à naissance de la mandibule inférieure jaunâtre ; l’iris brun ; ” and of the other two, “ iris est blanc dans le premier, et blanc sale dans le dernier.”

The first of M. Taczanowski’s articles, above referred to,

* Mr. Sharpe gives the measurement of the culmen in this specimen as 2·5 inches, having doubtless included the cere ; I make it, inclusive of the cere, 2·3 inches.

contains at p. 551, in the last paragraph but one, the description of a male and female from Peru in the second or rufous stage, but just beginning to change into the third phase of plumage; both these specimens are described as having the bill black on the upper mandible, and yellow on the lower, the irides white, slightly tinged with yellow, and the feet carrot-yellow.

The female from Tehuantepec in the Norwich Museum is also in the second stage of plumage, and is marked by the collector "Jeune femelle: iris blanc-perle, pieds jaunes;" it was shot in the month of November.

The male from the same locality, which is preserved at Norwich, and which was killed in January, has passed into the third stage of plumage, with the exception of a considerable amount of rufous colouring still mingled with the transverse grey and white bands of the under surface; and another male, in a similar state of transition, which was obtained in Peru, is recorded by M. Taczanowski in the P. Z. S. for 1879, p. 242, in the third paragraph of his note on this species.

The two specimens in the collection of Messrs. Salvin and Godman from the Upper Amazon and from Bahia, and that from Peru in the British Museum, have all nearly attained the third stage of plumage; but the last-named example would seem, from the remains of its earlier dress, which it still retains, to have passed direct from the first to the third stage, without making a transit through the second, an irregularity which also partially, if not wholly, happens, as I have already observed, in *R. uncinatus*.

The type specimen from Peru figured in the work of Castelnau and Deville, pl. 1, is represented as having completely attained the third stage of plumage; and the following note is there given of the colours of the non-feathered parts:—"l'iris de cet oiseau est blanc, le tour de l'œil bleu, la peau nue du sourcil orangée, la cire et les pattes sont d'un jaune verdâtre clair."

Another Peruvian specimen, a male, described in the second paragraph of M. Taczanowski's note in the P. Z. S. for 1879, p. 242, is shown to be somewhat older than the type, from the

fact of the white bars on the under surface having become narrower. The following particulars are given respecting the iris &c. in this example :—" Iris blanc ; peau nue autour des yeux bleu-verdâtre ; avec une tache jaune devant l'œil ; pattes orangées."

The only example of this species in the fourth, or final, dark slaty-grey dress unmingled with white on the under surface, which has come under my notice, is one which was obtained in Peru by the traveller Tschudi, and is now preserved in the Norwich Museum. The plumage of this specimen closely agrees with that of the final stage of *R. uncinatus*, except that the tail still shows some slight remains of the upper white band, and that the broad central tail-band is white only on the inner webs of the rectrices, that portion of their outer webs being a somewhat pale grey. This example is rather a small one, and most probably a male ; though so old a bird, the measurement of its culmen is less than that of any other specimen that I have examined, being only 1·7 inch along the curve.

To complete the parallel between the coloration of *R. uncinatus* and *R. megarhynchus*, the melanistic phase of plumage appears to be of a similar character in both species. Such a dark-brown specimen of *R. megarhynchus* from Peru is described by M. Taczanowski in the P. Z. S. for 1874, p. 551 (third paragraph). This specimen seems to have differed but little from ordinary ones in the colour of its unfeathered parts, as to which M. Taczanowski quotes the following note from the pen of M. Jelski, who obtained it :—" La peau nue devant les yeux est d'un jaune presque orangé ; la circe est jaune verdâtre tirant un peu en bleu sur les côtés, olivâtre plus foncée au dos et au-dessus des narines. La mandibule supérieure est noire, inférieure jaune. Les pattes jaunes de carotte ; les ongles noirs. L'iris blanc avec une légère nuance jaunâtre."

The only remaining species of the genus *Regerhinus*, *R. wilsoni*, appears to be peculiar to the island of Cuba ; it is one which has not come under my personal observation, but which would seem to be readily distinguishable from its two congeners by the colour of its bill,

Mr. Ridgway, in a letter which he was so good as to write to me respecting it, says, "the bill is pale greenish yellow, not black or dusky, like *R. uncinatus*."

In Cassin's original description of this species, in the 'Journal of the Academy of Natural Sciences of Philadelphia,' ser. 2, vol. i. pp. 21, 22, it is said that the bill is "yellowish white, inclining to bluish horn-colour at the base," and the iris "greenish yellow."

The following particulars relating to this subject are given by Gundlach in the 'Journal für Orn.,' vol. ii. p. 77:—"Bill light horn-colour; cere light green, with some few yellowish places; legs pale orange-yellow; eyes bluish white."

Judging from Cassin's article above referred to, and one by Ridgway at p. 159 of his 'Studies of the American Falconidæ,' it would seem that the transitions of plumage in *R. wilsoni*, so far as they are known, much resemble those of the other two species of the genus *Regerhinus*.

I may now pass on to the genus *Leptodon*, which, as I have already mentioned, contains but a single species, *L. cayennensis*.

The adult plumage of this species has long been well known; it was figured by D'Aubenton in the 'Planches Enl.' pl. 473, and by Spix in the 'Av. Bras.' pl. 8; it is also sufficiently described in Mr. Sharpe's volume.

Younger specimens exhibit considerable variations of plumage, which require more detailed attention. The youngest I have examined is one from Demerara in the British Museum—a newly flown nestling, in which the quill-feathers of the wings and tail are still encased, at the base, in the sheaths indicative of that age. In this specimen the following parts are pure white, viz., the entire head (excepting a very narrow black mark immediately above the eye, which is prolonged for a short distance behind it, and excepting also the feathers in the central part of the crown, which have shaft-marks and centres of a rather dark brown), the nape, the upper interscapulars, and the entire under surface, including the under wing-coverts; the mantle and the wings are dark

brown, with rufous edgings, which are broadest on the lower interscapulars, the upper tail-coverts, the secondaries, and the tertials; all the quill-feathers of the wing are crossed by blackish-brown bars, which are broadest on the primaries. The tail has two* broad blackish-brown transverse bars, with an intervening grey bar; below the lower dark bar is a narrow rufous line, succeeded by an indistinct brown one; this is followed by another rufous line, and that by the tip of the tail, which is whitish.

There appear to be two distinct types of coloration amongst the immature birds of this species—one, of which the nestling above described may serve as an example, in which a pure white preponderates on the head, neck, and underparts, and which is the more frequent of the two; the other, a much darker type, which is not so common, and to which I propose to refer more fully after I have noticed some additional specimens of young birds in the white-breasted plumage. Mr. Sharpe treats these two phases of coloration as consecutive, supposing the darker to be the younger of the two; but this is, I think, disproved by the existence both of the white-breasted nestling above described, and of specimens in course of change from that stage and also from the dark phase of plumage into the adult dress.

The dark plumage is, I believe, a peculiarity incident to some young birds of this species and not to others, the case being almost a parallel one to that of the dark and light phases of plumage amongst the immature examples of *Pernis apivorus* and *P. ptilorhynchus*; and in this instance, as in that, though I think less frequently, young birds of an intermediate complexion, as regards coloration, also occasionally occur.

It may be convenient to attach a number to the several specimens to which I am about to refer; and commencing by calling the Demerara nestling, already described, "No. 1," I would now refer to No. 2 on my list, an example from Ecuador, which has been kindly lent to me by Messrs. Salvin

* The small number of these bars is probably due to the tail not being quite fully grown.

and Godman; it is a slightly older bird than No. 1, but closely resembles it, with the following exceptions:—the patch of dark colouring on the crown of the head is larger and more tinged with black, but the feathers on the outer circumference of this patch or cap are partially white, and all the remainder are narrowly tipped with whitish brown; the white feathers on the lowest row of the nuchal collar are mingled with brown, and the rufous edgings of the interscapulars are narrower than in the nestling; the broad dark transverse bands on the tail are three in number, with two lighter brown interspaces, and, lastly, a few of the tibial feathers show a very narrow dark shaft-mark.

No. 3 is another Ecuador specimen in the collection of Messrs. Salvin and Godman, very similar to No. 2, but with fewer of the dark feathers on the crown showing the whitish edge, and with no dark shaft-marks on the tibial feathers. In this example the interscapulars have conspicuous rufous edges, as in No. 1, and the tail is crossed by four dark bars, of which the uppermost is concealed by the tail-coverts, and by three pale interspaces in addition to the pale tip.

In the adult birds of this species the greyish white of the upper breast is interrupted, for about an inch on either side, by a tuft of slaty-black feathers springing from below the wing at the shoulder-joint; in specimen No. 3 one feather of these tufts is appearing, on the left side only, amongst the pure white breast-plumage; but this feather is of a dark brown hue, instead of being slaty black, as in the adult.

No. 4 is from the same locality, and is preserved in the same collection as No. 3, to which it is very similar, but is in a slightly more advanced stage of plumage; the pale tips to the blackish-brown feathers on the crown of the head are for the most part gone, and the dark tufts are beginning to appear on both sides of the upper breast. This specimen much resembles Temminck's figure in the 'Planches Col.' pl. 204*; but the latter shows very narrow dark shaft-

* The name of "*Falco palliatus* ♀" is erroneously attached to this plate,

marks on the lower breast and thighs, which in specimen No. 4 are not present.

A specimen from Panama, which was, some time since, in the possession of M. Boucard, and which I may call No. 5, much resembles No. 3, but has a few rather broad shaft-marks just above the centre of the crop.

No. 6, an immature bird from Costa Rica, in the Norwich Museum, resembles No. 2 in the whitish edgings to the dark feathers of the crown; but the patch of dark colour on that part of the head is less extended in this specimen than in any other that I have examined, except No. 1; it likewise exhibits a considerable admixture of wholly or partially white feathers amongst the brown ones of the lesser and median wing-coverts, a peculiarity which I have not observed in any other example that has come under my notice; and it also has an unusual proportion of white mingled with the brown of the upper tail-coverts. This specimen has, to a slight extent, commenced the assumption of the adult dress, simultaneously with which the rufous edgings to the feathers of the upper surface have almost entirely disappeared; the patches of dark-brown feathers on each side of the upper breast are present, as in No. 3, and three adult feathers of a dark greenish* slate-colour (one a secondary wing-feather, and the other two scapulars) have already made their appearance.

No. 7 is another Ecuador specimen belonging to Messrs. Salvin and Godman, and resembles No. 4, but is considerably more advanced, many grey feathers being mingled with the immature white plumage of the forehead, ear-coverts, nuchal collar, throat, and upper breast, and some adult feathers of the dark greenish-slaty hue also appearing amongst the upper interscapulars. In this example some of the tibial and lower flank-feathers show a narrow black shaft-mark, and on two of the former a decided blackish-brown spot is visible.

A specimen in an almost precisely similar state of change,

* This slight tinge of dark green on the feathers of the mantle is more decidedly present in some adults than in others, and is probably most visible when the plumage has been recently renewed.

but with the addition of one adult tertial, is preserved in the British Museum; this example, which I may call No. 8, is merely labelled "South America."

No. 9, from Costa Rica, is also in the British Museum, and appears to be a bird of about the same age as No. 4, with which it agrees in general appearance; but in some respects it approaches the darker type of immature plumage to which I have already adverted. Thus, the dark plumage on the crown of the head is more extended, both towards the forehead and the nape, and especially in the latter direction, where it reduces the breadth of the white nuchal collar to about half an inch instead of two and a half inches, as it is in No. 4; the blackish mark behind the eye is also broader than in the specimens previously described, and extends backwards till it completely joins the hinder part of the dark cap or crown-patch, which in the other specimens it either does not join at all, or at most very imperfectly. The white ear-coverts in this example have dark shaft-marks. The mantle differs from the other specimens which I have described in having the interscapulars of a somewhat darker hue, although no adult feathers seem to have yet appeared; black shaft-marks are also apparent on a few feathers of the throat, and the tibial feathers have elongated blackish-brown centres; on some of the white feathers of the breast a few very narrow and faintly marked brownish transverse lines are just visible.

The dark phase of plumage, to which I have already alluded, is also evidently an immature one, as all the examples of it that I have examined retain more or less of the rufous edgings to the feathers of the mantle, though I have seen none in which these are retained to so great an extent as in No. 1 and in some other very young white-breasted examples.

In this dark phase the nuchal collar is usually entirely absent, whilst in others it exists, but is rufous instead of being white*; on the entire upper surface and sides of the

* I have never personally examined one of these rufous-collared specimens, but such a one is figured by Temminck in the 'Pl. Col.' pl. 270. Professor Schlegel, also, thus refers to examples of this description in his

head the plumage is blackish brown; the same hue pervades the interscapular feathers, and, when there is no rufous collar, the sides and nape of the neck also; the remainder of the upper surface, including the tail, resembles the corresponding parts in the white-breasted young birds, except that where the latter are partially white on the inner webs of the quill-feathers of the wing and on the upper tail-coverts, the dark-plumaged birds show a pale ferruginous tint replacing the white on those portions of the plumage.

On the under surface these dark-coloured birds seem to be subject to considerable individual variation.

In a bird of this complexion from Costa Rica, which is in the possession of Messrs. Salvin and Godman, and which I may call No. 10, the dark shaft-marks are broad on the centre and outer sides of the throat, and narrow in the intermediate space; broader, again, across the crop, on the flanks, and on the thighs, as well as on the axillaries and under wing-coverts (where, however, they are paler in colour), and narrow on all the remainder of the underparts, except on the under tail-coverts, from which they are altogether absent. The Norwich Museum possesses a very similar example from Trinidad; and at pp. 35 and 36 of Léotaud's birds of that island, two specimens are described which seem to have been of a character somewhat intermediate between the lighter and darker phases of plumage, and to have been also in course of change from immature to adult dress.

I propose now to refer to the colour of the underparts in two other specimens belonging to Messrs. Salvin and Godman, of a similar character to No. 10, but darker on that portion of their plumage; these specimens I may enumerate as Nos. 11 and 12.

In No. 11, which is from the southern slope of the volcano of Chiriqui, the shaft-marks are very much as in No. 10 on

account of this species in the 'Muséum des Pays-Bas,' vol. i. Pernes, p. 9:—"D'autres individus sont bruns en dessus, blanchâtres en dessous, avec des taches longitudinales brunes plus ou moins étendues, cou avec un collier roux."

some of the tibial feathers, also on the wing-coverts, axillaries, flanks, and abdomen; on some feathers of the under tail-coverts faintly rufescent broadened shaft-marks are perceptible; on all the remainder of the under surface, consisting of the entire breast and throat, the shaft-mark on each feather is expanded into a broad blackish-brown patch occupying the whole of the feather, except a narrow edge and the base, which are white, but not conspicuously so.

In No. 12, a female, also from Chiriqui, broadened shaft-marks, like those on the breast of No. 11, extend over the entire under surface; but on the under tail-coverts they are of a decided rufous brown, instead of being blackish brown, as elsewhere. Except for the lack of the rufous collar, this specimen would closely resemble Temminck's plate (Pl. Col. 270). An example from Honduras, very similar to No. 12, is preserved in the British Museum.

I may also here mention two specimens in the collection of Messrs. Salvin and Godman, which I may call Nos. 13 and 14, and which have attained the adult dress, with the exception of some slight remains of earlier plumage, that seem to be relics of the darker phase of immature colouring. No. 13 is a male from Venezuela, which retains one dark feather on the breast, others, partially dark, on the sides, and several brown secondaries in the wings; while in No. 14, from Guatemala, most of the tibial feathers are of a blackish slate-colour, mingled with pale grey, and a few feathers of the flanks are similarly tinged, though to a less extent.

Mr. Sharpe does not mention the colour of the iris in this species, which, according to other authorities, is liable to considerable variation.

The nearly adult male from Venezuela, No. 13 in the above list, is marked by the collector as having the iris yellow; but an adult male from the same locality in the Norwich Museum is similarly marked as having the iris brown; it is also noted by the collector as light brown in a white-breasted immature male in the same collection, the locality of which is unknown.

An adult female from Yucatan, killed on 20th February,

and recently in the possession of M. Boucard, was noted by the collector as having the iris dark grey.

Léotaud, in his article on this species, to which I have already referred, says, "Cire, iris et pattes d'un jaune clair; bec noir."

In Professor Sumichrast's notes on the 'Birds of South-Western Mexico,' published by Mr. Lawrence, he says of this species, at p. 42, "iris brown; upper mandible black, the lower, cere, lores, eyelids, and feet bluish ash, the cere spotted with black."

Professor Schlegel, in his article on this species, which I have already quoted, says, "Serres, iris de l'œil, angle de la bouche et moitié postérieure de la mandibule inférieure d'un jaune orange; freins et paupière supérieure d'un jaune clair."

Judging from the skins which I have examined, I believe that the base of the lower mandible is yellow in the young birds only, and not in the adult.

[To be continued.]

XXXI.—*Ornithological Letters from the Pacific*. No. III.*

By OTTO FINSCH, Ph.D., H.M.B.O.U., &c.

Taluit (Bonham), Marshall Islands,
November 15, 1879.

SINCE I wrote you my last letter (dated September 20th) I have made a trip in a small schooner of 80 tons to the eastern (Ratak) chain of this group of islands, without doing much as regards ornithology. Sea-birds were generally as rare as they were on the voyage down the Pacific from Honolulu. In fact, we passed days when not one single bird was seen, and Tropic-birds (*Phaeton flavirostris* and *P. athereus*) and a single species of Shearwater were almost the only ornithological appearances at all. The latter was dark brown all over; but the birds were always too far out to recognize the species. Once only I noticed a *Procellaria*, dark, with a white rump. Frigate-birds (*Tachypetes*) I only observed twice, high in the air, but easily recognizable by their forked

* For No. II, see 'Ibis,' 1880, p. 218.